



State of New Jersey

DEPARTMENT OF TRANSPORTATION
1035 Parkway Avenue
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CHRISTINE TODD WHITMAN
Governor

Trenton, New Jersey 08625-0600

FRANK J. WILSON
Commissioner

Core Samples, Concrete and
Core Samples, Bituminous
95039 ADU

May 30, 1995

MEMORANDUM

All Design Units

Subject: Revisions to the 1989 Standard Specifications, Sections 404 and 405

Reference: Memorandums to All Personnel Concerned entitled "Core Samples
Concrete, Core Samples Bituminous" dated July 3, 1992 and
October 30, 1992

As a result of an increased work load and Department manpower shortages, projects shall include provisions for the contractors to take core samples of finished bituminous or concrete pavements when coring is required on those projects.

The contract plans for any project that contains 2500 or more square yards of proposed bituminous pavement shall include the pay item CORE SAMPLES, BITUMINOUS (Standard Item Number 4D02J). The contract plans of any project that contains 7500 or more square yards of proposed concrete pavement shall include the pay item CORE SAMPLES, CONCRETE (Standard Item Number 4E03J). The attached guidelines shall be used to determine the estimated number of cores to be included as "If and Where Directed" contract quantities.

The Supplementary Specifications for all projects which contain Core Samples shall include the following GET FILES, as appropriate.

Lines 4187 through 4191, inclusive, of SI89 ROAD7 shall be changed to:

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H *****
H      USE FOR PROJECT WITH CORE SAMPLES, BITUMINOUS (ADU 053095)
H      .....G 40400 CORSAMB2
H      CHECK FOR TEXT TO BE INCLUDED IN SPRUF ( )   MASTERS ( )
H *****
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Page Two
Core Samples, Concrete and
Core Samples, Bituminous
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Lines 4469 through 4473, inclusive, of SI89 ROAD7 shall be changed to:

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H *****
H      USE FOR PROJECT WITH CORE SAMPLES, CONCRETE (ADU 053095)
H      .....G 40500 CORSAMC2
H      CHECK FOR TEXT TO BE INCLUDED IN SPRUF ( ) MASTERS ( )
H *****
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A copy of the text of each GET FILE is attached.

The above referenced Memorandums are hereby superseded.

RECOMMENDED BY:

APPROVED BY:

Carl D. Peck for
Robert K. Suess, Manager
Bureau of Roadway Plans
and Specifications

Charles F. Takacs
Charles F. Takacs
Director of Roadway Design
(Chief Engineer of Roadway Design)

Attachments

Implementation Code C

RKS:FC:ab

DETERMINING THE ESTIMATED
NUMBER OF CORE SAMPLES

A. BITUMINOUS PAVEMENT -

1. Calculate the approximate surface area of the proposed bituminous pavement (length x width). If the surface area is less than 2500 square yards, no cores are needed.
2. If the surface area of the proposed bituminous pavement is 2500 square yards or more, calculate the surface areas which have uniform thicknesses through the pavement section (generally new construction and reconstruction areas and areas of full depth widening) and the surface areas which have variable thicknesses (overlays are generally considered variable depth pavements).
3. Using Tables 1 and 2, determine the number of cores needed for both the uniform thickness and variable thickness surface areas. The total "Core Samples, Bituminous" for the project shall be the sum of the number of cores needed for each type of surface area.

B. CONCRETE PAVEMENT -

1. Calculate the surface area of the proposed concrete surface course. If the surface area is less than 7500 square yards, no cores are needed.
2. If the surface area of the proposed concrete surface course is 7500 square yards or more, use the table of uniform thickness pavements (Table 1) to determine the number of cores needed. This number is the total "Core Samples, Concrete" for the project.

TABLE 1 - UNIFORM THICKNESS PAVEMENTS (Bituminous or Concrete)

<u>Total Area of Uniform Thickness (SY)</u>	<u>Number of Cores</u>
0 - 2,499	0
2,500 - 7,499	*(See Below)
7,500 - 22,500	15
22,501 - 37,500	30
37,501 - 52,500	45
52,501 - 67,500	60
67,501 - 82,500	75
82,501 - 97,500	90
97,501 - 112,500	105
112,501 - 127,500	120
127,501 - 142,500	135
142,501 - 157,500	150
157,501 - 172,500	165
172,501 - 187,500	180
187,501 - 202,500	195
202,501 - 217,500	210
217,501 - 232,500	225

* For Bituminous Pavement the Number of Cores is 5
For Concrete Pavement the Number of Cores is 0

TABLE 2 - VARIABLE THICKNESS PAVEMENTS (Bituminous)

<u>Total Area of Variable Thickness (SY)</u>	<u>Number of Cores</u>
0 - 2,499	0
2,500 - 15,000	5
15,501 - 25,000	10
25,501 - 35,000	15
35,001 - 45,000	20
45,001 - 55,000	25
55,001 - 65,000	30
65,001 - 75,000	35
75,001 - 85,000	40
85,001 - 95,000	45
95,001 - 105,000	50
105,001 - 115,000	55
115,001 - 125,000	60
125,001 - 135,000	65
135,001 - 145,000	70
145,001 - 155,000	75

..... 40400 CORSAMB2

THE FOLLOWING IS ADDED TO THIS SECTION:

CORE SAMPLES, BITUMINOUS

DESCRIPTION.

THIS WORK SHALL CONSIST OF TAKING CORE SAMPLES OF BITUMINOUS CONCRETE PAVEMENT FOR TESTING AS DETAILED IN SECTIONS 404, 903 AND 990.

MATERIALS.

PATCHING MATERIAL FOR FILLING CORE HOLES SHALL BE A COMMERCIAL TYPE OF COLD MIXTURE SUCH AS SAKRETE, ACE CRETE, HOME CRETE, OR EQUIVALENT. AN APPROVED BITUMINOUS CONCRETE CONFORMING TO SECTION 903 FOR MIX I-5 MAY BE USED PROVIDED THE MATERIAL REMAINS HOT ENOUGH TO COMPACT.

CONSTRUCTION REQUIREMENTS.

UPON COMPLETION OF THE BITUMINOUS CONCRETE PAVING, THE CONTRACTOR SHALL OBTAIN CORES FROM THE FINISHED PAVEMENT AT RANDOM LOCATIONS AS DIRECTED. THE ENGINEER WILL REQUEST THE RANDOM CORE LOCATIONS THROUGH THE DEPARTMENT'S BUREAU OF MATERIALS.

THE CORES SHALL BE 4 INCHES IN DIAMETER AND THE DRILLING EQUIPMENT OF SUFFICIENT SIZE AND POWER TO DRILL THROUGH THE ENTIRE THICKNESS OF THE PAVEMENT. THE DRILL BIT SHALL BE OF A WATER COOLED DIAMOND TIPPED MASONRY TYPE CAPABLE OF OBTAINING A VALID TEST SAMPLE THROUGH THE ENTIRE PAVEMENT THICKNESS. EACH CORE SHALL BE IDENTIFIED BY NUMBER, PAINTED ON THE SIDE OF THE SAMPLE AND ACCOMPANIED BY THE APPROPRIATE LABORATORY FORM, SUPPLIED BY THE ENGINEER. THE DEPARTMENT WILL HAVE THE SAMPLES TRANSPORTED TO THE CENTRAL LABORATORY AT NO COST TO THE CONTRACTOR.

PATCHING.

AFTER THE CORE HAS BEEN REMOVED FROM THE PAVEMENT, THE EXCESS COOLING WATER SHALL BE PUMPED FROM THE HOLE AND THE HOLE FILLED AND COMPACTED WITH PATCHING MATERIAL. THE FINISHED PATCH SHALL BE AT LEAST 1/4 INCH ABOVE THE SURROUNDING PAVEMENT SURFACE TO ALLOW FOR ADDITIONAL COMPACTION BY TRAFFIC.

TRAFFIC SAFETY.

DURING THE CORING OPERATION, TRAFFIC SAFETY SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH SECTION 110 AS NECESSARY AND AS DIRECTED.

METHOD OF MEASUREMENT.

CORE SAMPLES, BITUMINOUS WILL BE MEASURED BY THE NUMBER OF EACH.

BASIS OF PAYMENT.

PAYMENT WILL BE MADE UNDER:

PAY ITEM

PAY UNIT

CORE SAMPLES, BITUMINOUS

UNIT

***** (END) *****

..... 40500 CORSAMC2

THE FOLLOWING IS ADDED TO THIS SECTION:

CORE SAMPLES, CONCRETE

DESCRIPTION.

THIS WORK SHALL CONSIST OF TAKING CORE SAMPLES OF PORTLAND CEMENT CONCRETE PAVEMENT FOR TESTING AS DETAILED IN SECTIONS 405 AND 914.

MATERIALS:

PATCHING MATERIALS FOR FILLING CORE HOLES IN THE PORTLAND CEMENT CONCRETE PAVEMENT SHALL BE FRESH CONCRETE CONFORMING TO SECTION 914 AND OF THE SAME STRENGTH AS THE EXISTING PAVEMENT OR BE A COMMERCIAL PATCH MIX APPROVED BY THE ENGINEER THAT WILL PROVIDE THE SAME STRENGTH AS THE EXISTING PAVEMENT.

CONSTRUCTION REQUIREMENTS.

UPON COMPLETION OF THE PORTLAND CEMENT CONCRETE PAVING, THE CONTRACTOR SHALL OBTAIN CORES FROM THE FINISHED PAVEMENT AT RANDOM LOCATIONS AS DIRECTED. THE ENGINEER WILL REQUEST THE RANDOM CORE LOCATIONS THROUGH THE DEPARTMENT'S BUREAU OF MATERIALS.

THE CORES SHALL BE 4 INCHES IN DIAMETER AND THE DRILLING EQUIPMENT OF SUFFICIENT SIZE AND POWER TO DRILL THROUGH THE ENTIRE THICKNESS OF THE PAVEMENT. THE DRILL BIT SHALL BE OF A WATER COOLED DIAMOND TIPPED MASONRY TYPE CAPABLE OF OBTAINING A VALID TEST SAMPLE THROUGH THE ENTIRE PAVEMENT THICKNESS. EACH CORE SHALL BE IDENTIFIED BY NUMBER, PAINTED ON THE SIDE OF THE SAMPLE AND ACCOMPANIED BY THE APPROPRIATE LABORATORY FORM, SUPPLIED BY THE ENGINEER. THE DEPARTMENT WILL HAVE THE SAMPLES TRANSPORTED TO THE CENTRAL LABORATORY AT NO COST TO THE CONTRACTOR.

PATCHING.

AFTER THE CORE HAS BEEN REMOVED FROM THE PAVEMENT, THE EXCESS COOLING WATER SHALL BE PUMPED FROM THE HOLE AND THE HOLE FILLED FLUSH WITH THE ADJACENT PAVEMENT SURFACE WITH CONCRETE PATCH MATERIAL.

TRAFFIC SAFETY.

DURING THE CORING OPERATION, TRAFFIC SAFETY SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH SECTION 110 AS NECESSARY AND AS DIRECTED.

METHOD OF MEASUREMENT.

CORE SAMPLES, CONCRETE WILL BE MEASURED BY THE NUMBER OF EACH.

BASIS OF PAYMENT.

PAYMENT WILL BE MADE UNDER:

PAY ITEM

PAY UNIT

CORE SAMPLES, CONCRETE

UNIT

***** (END) *****
